PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 4 -32444A/32445/USN	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP 03/03466	International filing date *(day/month/year)* 02.04.2003	Priority date *(day/month/year)* 03.04.2002
International Patent Classification (IPC) or both national classification and IPC C07D285/10		
Applicant NOVARTIS AG		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
02.10.2003	20.08.2004
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Menegaki, F Telephone No. +49 89 2399-8277

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 03/03466

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-114 as originally filed

Claims, Numbers

1-26 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 1-15 (part), 17-23

because:

☒ the said international application, or the said claims Nos. 17-23 relate to the following subject matter which does not require an international preliminary examination (specify):

see separate sheet

☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. are so unclear that no meaningful opinion could be formed *(specify)*:

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 1-15 (part)

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the Standard.

☐ the computer readable form has not been furnished or does not comply with the Standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-26
	No:	Claims	
Inventive step (IS)	Yes:	Claims	16
	No:	Claims	1-15,17-26
Industrial applicability (IA)	Yes:	Claims	1-16, 24-26
	No:	Claims	

2. Citations and explanations

see separate sheet

(III)
Claims 17-23 are directed to a method of treatment of the human/animal body and therefore no preliminary examination is required (Rule 67.1(iv) PCT).
It is noted by the IPEA that for the assessment of Claims 17-23 on the question whether their subject-matter is industrially applicable, no unified criteria exist in the PCT. The patentability under national patent laws can also be dependent on the formulation of the claims. The EPO, e.g., does not recognize the subject-matter of claims to the use of a compound in medical treatment as being industrially applicable, but will allow, however, claims to a known compound for the manufacture of a medicament for a new medical treatment.

Moreover, the prodrugs of the end products of formula (I) claimed per se are not covered by the International Search Report and therefore, no preliminary search shall be carried out in this respect.

(V)
Having regard to the International Search Report document
(D1) WO 01/19831, in particular Ex. 57 therein, involves a starting compound excluded due to to disclaimer Q_1-(ii);
(D2) WO 97/40017 includes generally 5-substituted 1,1-dioxo-thiadiazolidin-3-one compounds, without disclosing specific compounds;
(D3) Journal of Immunological methods, vol.207, 1997, compound 12 in Table 4 therein is excluded due to the disclaimer Q_1=(ii);
(D4) Il Farmaco, vol.53, 1998, p.293-304, in particular Ex.6 therein differs due to the 5-ergolinyl moiety, which does not fall under present formula (I).
Therefore, the requirements of Art.33(2) PCT appear to be fulfilled, provided that numerous further provisos in Claim 1 have not been introduced in order to exclude relevant prior art. The Applicant has not supplied information clarifying the reasons for introducing said disclaimers into the claims.

The problem underlying the present invention appears to be the provision of 5-substituted 1,1-dioxo-thiadiazolidin-3-one compounds useful as PTP-ase inhibitors in diabetes II treatment and related conditions. The IPEA has carefully considered the Applicant's arguments with regard to inventive step as stated in his letter of 7/08/2004 and can accept that the claimed subject-matter was not anticipated from the prior art disclosure in (D1)/(D2)/(D3). Nevertheless, even if the cited prior art documents are no longer considered to be relevant, the scope of the claimed substituents' definitions appears to be too broad and speculative, in particular due to the numerous provisos

excluding groups of compounds, thus casting serious doubt that an inventive step could be based on common structural features in formula (I).
Therefore, the requirements of Art.33(3) PCT do not appear to be fulfilled for Claims 1-15, 24-26, wherein numerous provisos appear to apply, whereas an inventive step can be acknowledged for the compounds of Claim 16.